

that claim 1 is vague, indefinite and confusing in the use of the recitation "ciliates (protozoa)" and for lack of clearly delineated process steps. Applicant respectfully submits that the rejection of claim 1 is moot, as claim 1 has been cancelled in the current amendment. None of the currently pending claims contain the recitation "ciliates (protozoa)." Further, all presently pending claims recite (or depend from a claim that recites) clearly delineated process steps. Applicant respectfully submits that the rejection may be withdrawn.

Rejection of claims 2 and 14

The Examiner has rejected claims 2 and 14, stating that the phrase "in particular" renders these claims unclear. Applicant respectfully submits that the rejection of claims 2 and 14 is moot, as these claims have been cancelled in the current amendment. Newly added claims 16 and 27 most closely resemble the language of the rejected claims, but do not contain the particular language objected to by the Examiner. Applicant respectfully submits that the rejection should be withdrawn.

Rejection of claims 5 and 9

The Examiner has rejected claims 5 and 9, stating that the phrases "for example" and "preferably" render the claims unclear. Applicant respectfully submits that the rejection of claims 5 and 9 is moot, as these claims have been cancelled in the current amendment. Newly added claims 19 and 23 most closely resemble the language of the rejected claims, but do not contain the particular language objected to by the Examiner. Applicant respectfully submits that the rejection should be withdrawn.

Rejection of claim 2

The Examiner has rejected claim 2, stating that the meaning of "wild strains" is uncertain. Applicant respectfully submits that the rejection of claim 2 is moot, as claim 2 has been cancelled in the current amendment. Newly added claim 16, which more clearly recites "wild-type strains," most closely resembles the language of the rejected claim. Applicant respectfully submits that the rejection may be withdrawn.

Rejection of claims 5 and 12-13

The Examiner has rejected claims 5 and 12-13, stating that the parenthetical phrases in these claims renders the claims indefinite. Applicant respectfully submits that the rejection of claims 5 and 12-13 is moot, as these claims have been cancelled in the current amendment. Newly added claims 19 and 26 most closely resemble the language of the rejected claims, but do not contain parenthetical phrases as objected to by the Examiner. Applicant respectfully submits that the rejection should be withdrawn.

Rejection of claim 12

The examiner has rejected claim 12, for lacking antecedent basis for the term “the cells contained in the cell extract.” Applicant respectfully submits that the rejection of claim 12 is moot, as claim 12 has been cancelled in the current amendment. Newly added claim 26 most closely resembles the language of the rejected claim. Applicant respectfully submits that antecedent basis exists for all terms in claim 26 and that the rejection should be withdrawn.

Rejection of claim 13

The examiner has rejected claim 13 for lacking antecedent basis for the term “the cell extraction rate or dilution rate.” Applicant respectfully submits that the rejection of claim 13 is moot, as claim 13 has been cancelled in the current amendment. Applicant respectfully submits that the rejection should be withdrawn.

Rejection of claim 10

The Examiner has rejected claim 10, stating that claim 10 encompasses an improper Markush grouping. Applicant respectfully submits that the rejection of claim 10 is moot, as claim 10 has been cancelled in the current amendment. Newly added claim 24 most closely resembles the language of the rejected claim, but is in proper form for a Markush grouping. Applicant respectfully submits that the rejection should be withdrawn.

Rejection of claim 14

The Examiner has rejected claim 14, stating that claim 14 encompasses an improper Markush grouping. Applicant respectfully submit that the rejection of claim 14 is moot, as claim 14 has been cancelled in the current amendment. Newly added claim 27 most closely resembles the language of the rejected claim, but is in proper form for a Markush grouping. Applicant respectfully submit that the rejection should be withdrawn.

Rejections under 35 U.S.C. § 102

Rejected claims 1-12 and 14 under 35 U.S.C. § 102(e) over Kiy *et al.*

The Examiner has rejected claims 1-12 and 14 under 35 U.S.C. § 102(e) as being anticipated by Kiy *et al.* The Examiner has stated that Kiy *et al.* discloses, *inter alia*, the continuous cultivation of ciliates in a complex medium, citing Kiy *et al.* at col. 5, lines 15-24. Applicants disagree and respectfully submit that Kiy *et al.* does not disclose a continuous fermentation process as presently claimed herein. In contrast to the Examiner's assertion, the cited passage of Kiy *et al.* discloses that the cells were harvested at day 10. No continuous cultivation process is disclosed. Applicant respectfully submits that the rejection over Kiy *et al.* should be withdrawn.

Rejection of claims 1-5, 7, 10-12 and 14 under 35 U.S.C. § 102(b) over Tiedke *et al.*

The Examiner has rejected claims 1-5, 7, 10-12 and 14 under 35 U.S.C. § 102(b) over Tiedke *et al.* stating, *inter alia*, that Tiedke *et al.* discloses continuous cultivation of ciliates in a complex medium for the production of a biological product.

Applicant respectfully submits that the method of Tiedke *et al.* is a fermentation process where the substance of interest is recovered by extraction of spent medium, not a continuous fermentation process to produce a biomass of ciliates, a presently claimed herein. Tiedke *et al.* utilizes a polypropylene membrane to remove spent medium while retaining the ciliates in the

fermentation vessel (Tiedke *et al.*, abstract). Thus, Tiedke *et al.* does not disclose the presently claimed invention which comprises, *inter alia*, harvesting the produced biomass at an extraction rate of about 0.1 to about 12 volumes per day. Applicant respectfully submits that the rejection should be withdrawn.

Rejection of claims 1-5, 7, 10-12 and 14 under 35 U.S.C. § 102(b) over Kiy *et al.* (1991)

The Examiner has rejected claims 1-5, 7, 10-12 and 14 under 35 U.S.C. § 102(b) over Kiy *et al.* (1991) stating, *inter alia*, that Kiy *et al.* (1991) discloses the continuous cultivation of ciliates, citing to page 16 of Kiy *et al.* (1991). Applicant disagrees. As the Examiner will readily appreciate, Kiy *et al.* discloses a method characterized as a semicontinuous cultivation, where the medium is changed once every 24 hours. Furthermore, the method of Kiy *et al.* (1991) is directed to the use of ciliates to produce secreted enzymes, not a biomass of ciliates. Thus, Kiy *et al.* (1991) does not disclose or suggest continuous cultivation for the production of a ciliate biomass as claimed herein. Applicant respectfully submits that the rejection over Kiy *et al.* (1991) should be withdrawn.

Rejections under 35 U.S.C. § 103

Rejection of claims 1-14 over Kiy *et al.*, taken with Curds *et al.* and Stafford

The Examiner has rejected claims 1-14 under 35 U.S.C. § 103, asserting that the claims are unpatentable over Kiy *et al.*, taken with Curds *et al.* and Stafford. Applicant respectfully disagrees. As discussed above, Kiy *et al.* does not disclose, relate or suggest the continuous exenic cultivation of ciliates to produce a ciliate biomass containing a biogenous substance as presently claimed herein.

Applicant respectfully requests clarification of the Examiner's position on the contribution of Curds *et al.* to the alleged obviousness of the claimed invention. In particular,

the Examiner's reference to using a biomass of feed organisms is unclear, as the present invention relates to the axenic continuous culturing of ciliates. Curds *et al.* does not disclose, relate to or suggest the use of ciliates to produce a ciliate biomass containing a biogenous substance. Rather, it is the Applicant's position that Curds *et al.* relates to studies comparing axenic and monoxenic growth rates of *T. pyriformis* to study the role of ciliates in the removal of bacteria observed in small-scale activated-sludge experiments. See e.g., Curds *et al.* at 343, first paragraph of introduction. Thus, Curds *et al.* alone or in combination with any other reference cannot disclose or suggest the continuous axenic cultivation of ciliates to produce a ciliate biomass as presently claimed herein.

Applicant respectfully submits that Kiy *et al.*, alone or in combination with Curds *et al.*, does not teach or suggest the presently claimed continuous fermentation process for producing a ciliate biomass containing a biogenous substance by culturing ciliates in a complex axenic culture medium. As discussed above, neither Kiy *et al.* nor Curds *et al.* disclose, suggest or relate to the continuous axenic cultivation of ciliates to produce a ciliate biomass containing a biogenous substance. The Examiner's reference to Stafford does not remedy the deficiencies of Kiy *et al.* and Curds *et al.* in this regard. Applicant respectfully submits that the rejection of claims 1-14 over Kiy *et al.*, taken with Curds *et al.* and Stafford should be withdrawn.

Rejection of claims 1-14 over Tiedke *et al.*, taken with Curds *et al.* and Kiy *et al.*

The Examiner has rejected claims 1-14 under 35 U.S.C. § 103, asserting that the claims are unpatentable over Tiedke *et al.*, taken with Curds *et al.* and Kiy *et al.* Applicant respectfully disagrees.

In contrast with the Examiner's assertion, Tiedke *et al.* teaches away from the use of a continuous axenic culture of ciliates to produce a ciliate biomass. Tiedke *et al.* utilizes ciliates to produce soluble factors found in spent medium. To accomplish this goal, Tiedke *et al.* utilizes a polypropylene membrane to remove spent medium while retaining the ciliates in the fermentation vessel. Thus, unlike the present invention, Tiedke *et al.* is directed away from harvesting the ciliate biomass. Thus, Tiedke *et al.*, alone or in combination with other

references, cannot render the present invention obvious.

As discussed above, neither Kiy *et al.* nor Curds *et al.* disclose, relate to or suggest continuous axenic cultivation of ciliates to produce a ciliate biomass containing a biogenous substance and do not remedy the deficiencies of Tiedke *et al.* Applicant respectfully submits that the rejection should be withdrawn.

Applicant believes that each stated ground for rejection has been addressed and that the Application is in condition for allowance. In the event that additional extensions of time are required, they are hereby requested. The Examiner is invited to contact the undersigned at (302) 888-6427 to clarify any remaining issues that may be present.

Respectfully submitted,

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